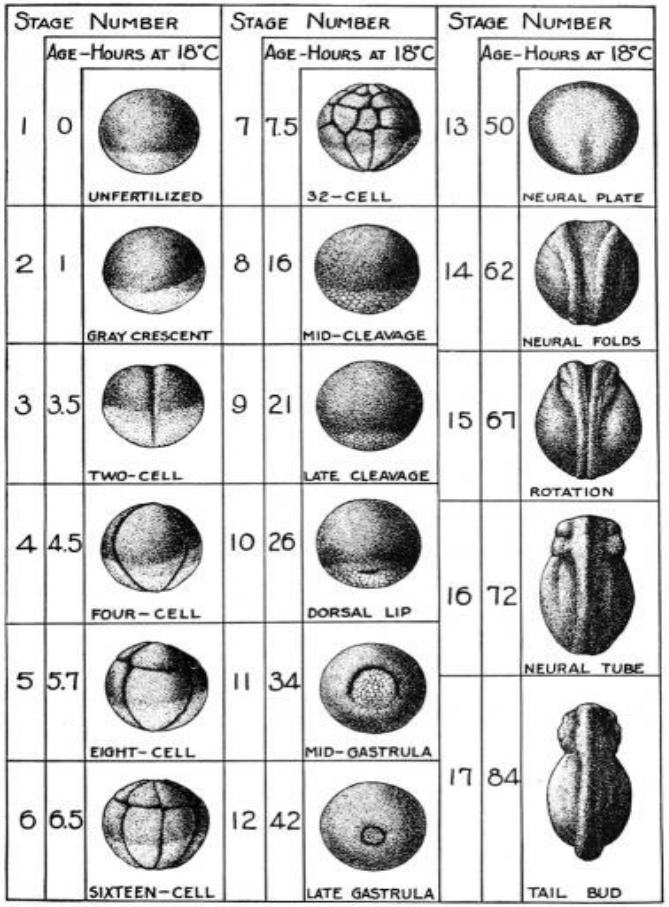
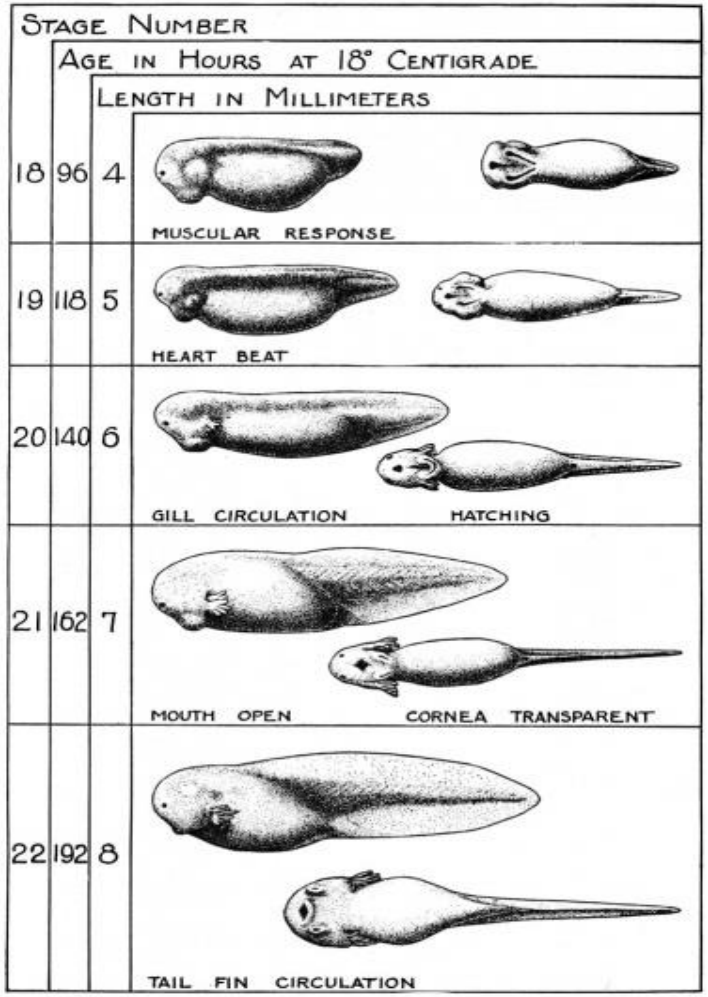
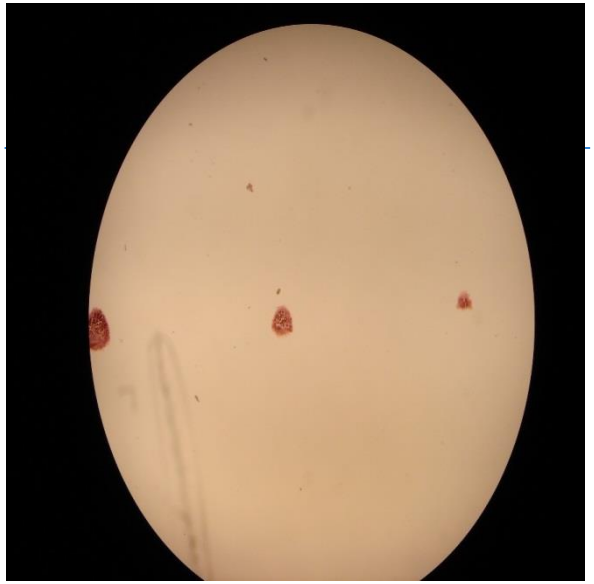
Faculty of Biological Science and Technology
Zoology and Botanical Department
Practical Embryology

Amphibian development
(7 mm larvae; cross sections)

By: Shirin Kashfi
Ph.D in Animal Development
Sh.kashfi@staf.ui.ac.ir


STAGE NUMBER
AGE-HOURS AT 18°C
1 0 UNFERTILIZED
2 1 GRAY CRESCENT
3 3.5 TWO-CELL
4 4.5 FOUR-CELL
5 5.7 EIGHT-CELL
6 6.5 SIXTEEN-CELL
7 7.5 32-CELL
8 16 MID-CLEAVAGE
9 21 LATE CLEAVAGE
10 26 DORSAL LIP
11 34 MID-GASTRULA
12 42 LATE GASTRULA
13 50 NEURAL PLATE
14 62 NEURAL FOLDS
15 67 ROTATION
16 72 NEURAL TUBE
17 84 TAIL BUD

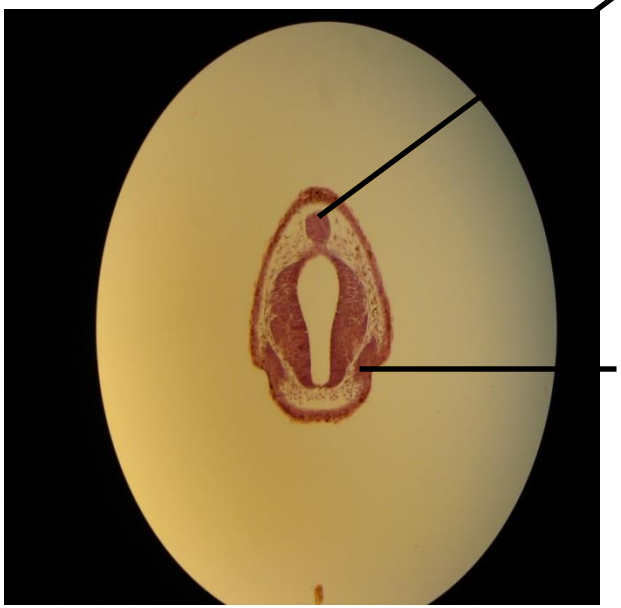

STAGE NUMBER
AGE IN HOURS AT 18° CENTIGRADE
LENGTH IN MILLIMETERS
18 96 4 MUSCULAR RESPONSE
19 118 5 HEART BEAT
20 140 6 GILL CIRCULATION HATCHING
21 162 7 MOUTH OPEN CORNEA TRANSPARENT
22 192 8 TAIL FIN CIRCULATION



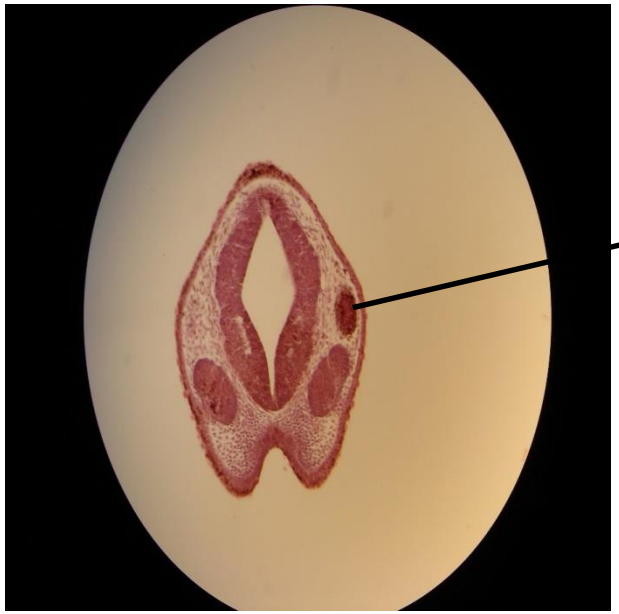
Epidermis
(pigmented epithelium)

telencephalon

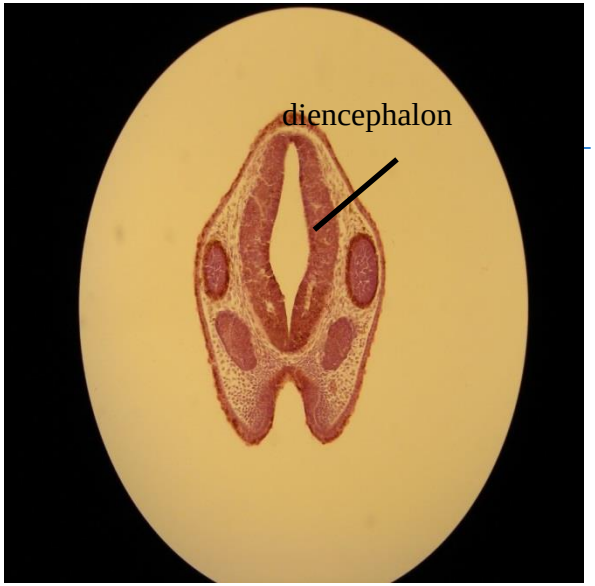
epiphysis



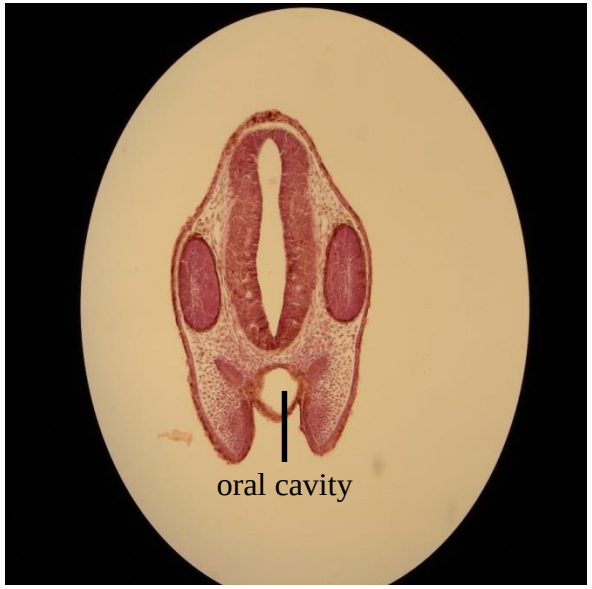
olfactory pit

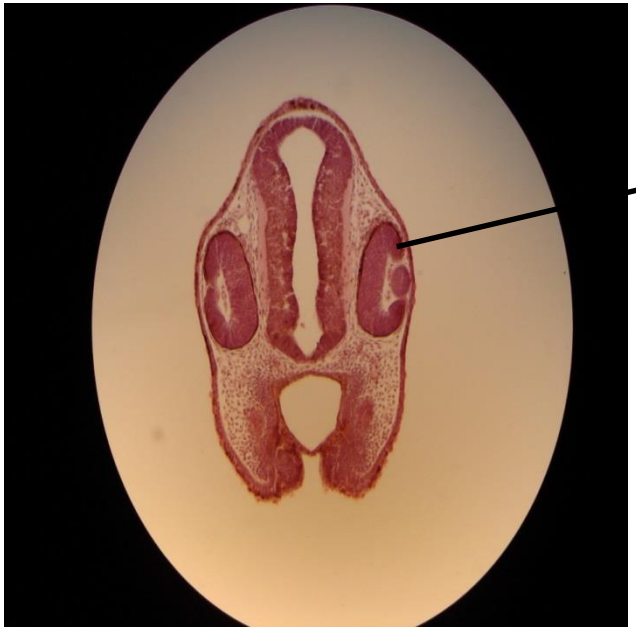


eye cut
superficially


diencephalon


oral membrane


oral cavity

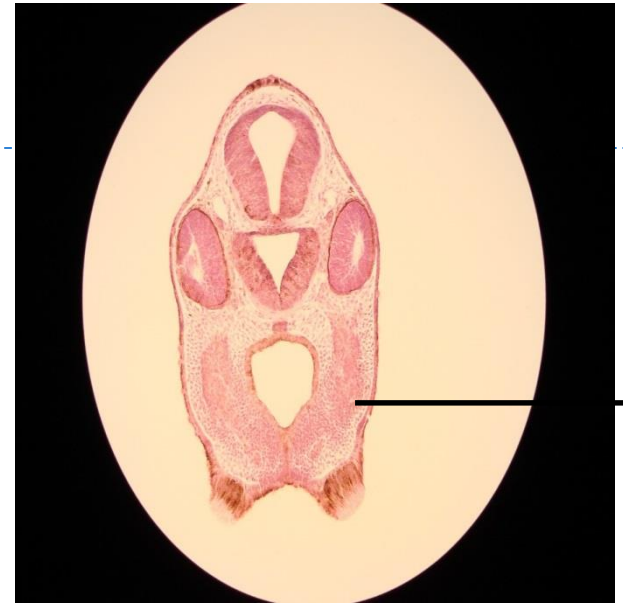


retina

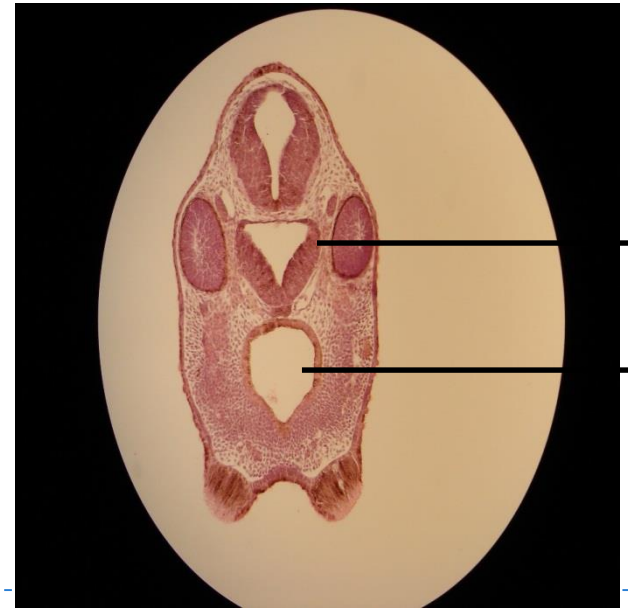
lens


anterior cardinal vein


mesencephalon
diencephalon
oral sucker



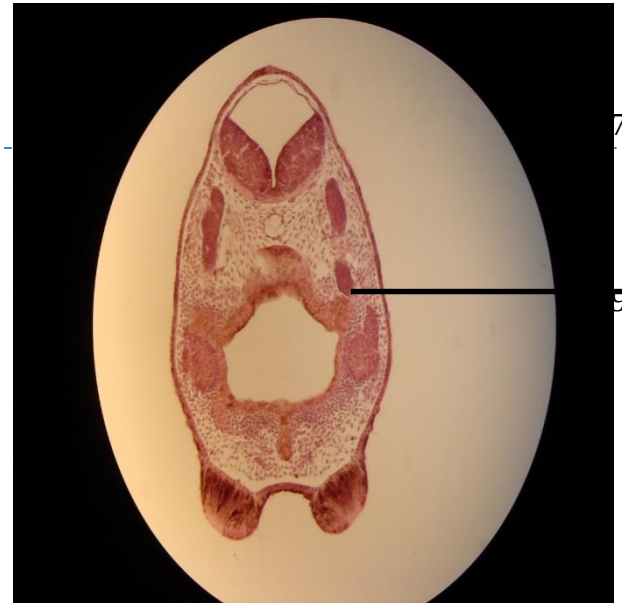
muscular and cartilaginous plates around pharynx



diencephalon

pharynx

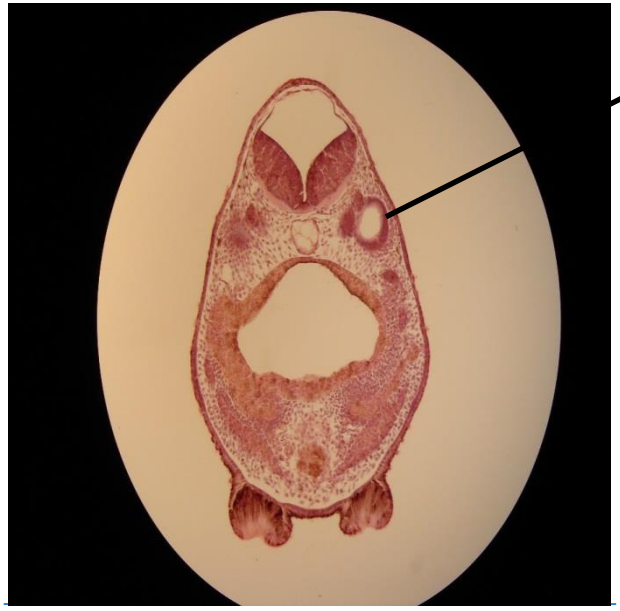
Hindbrain
(rhombencephal)



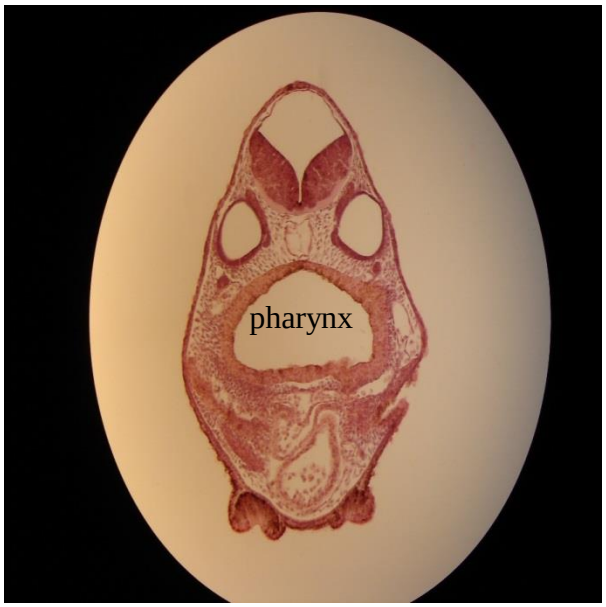
7th cephalic ganglion

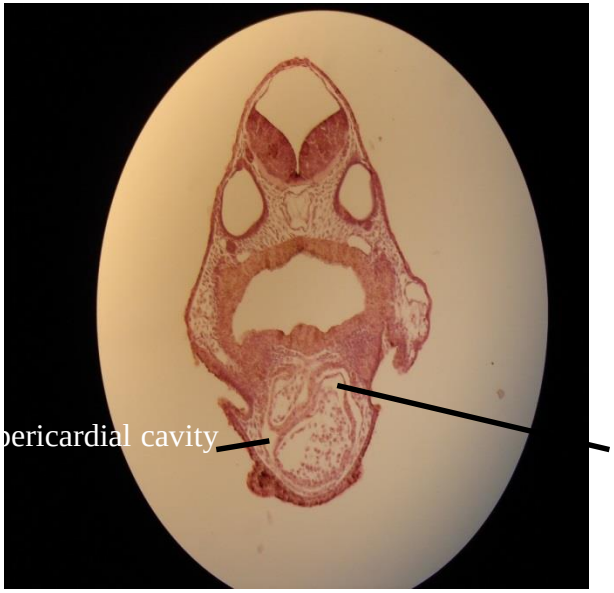
9th cephalic ganglion

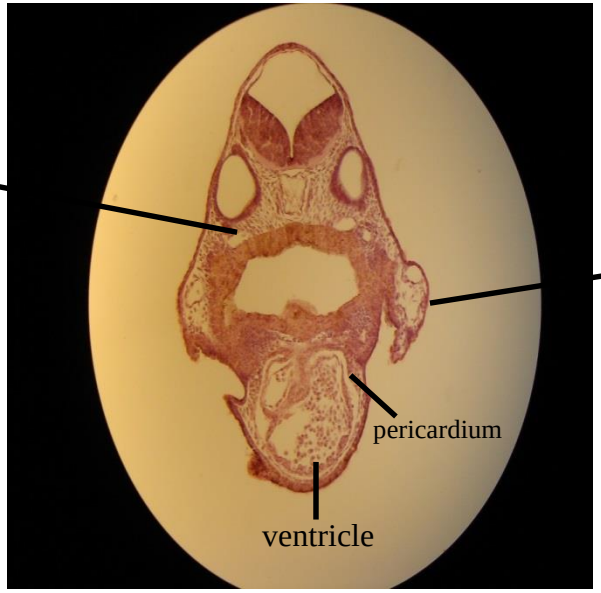
notochord

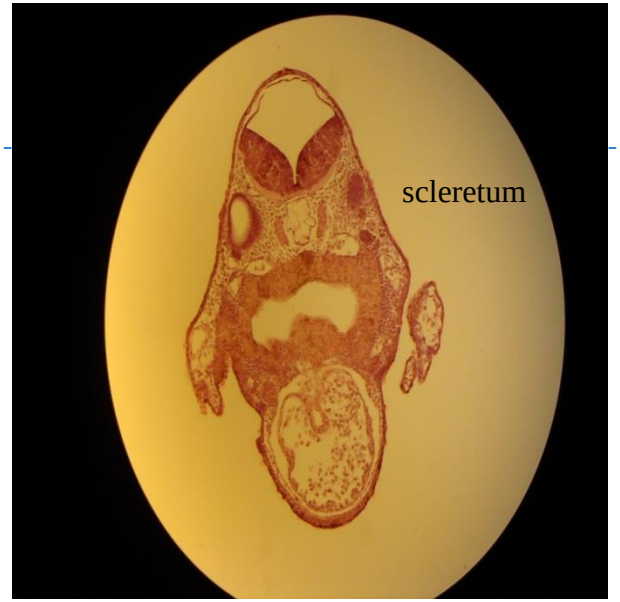

otic vesicle

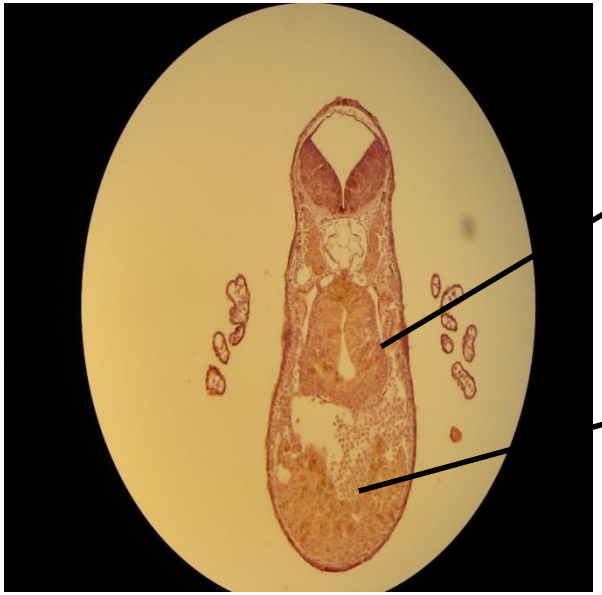
heart




pericardial cavity
truncus arteriosus


dorsal aorta
external gill
pericardium
ventricle


scleretum

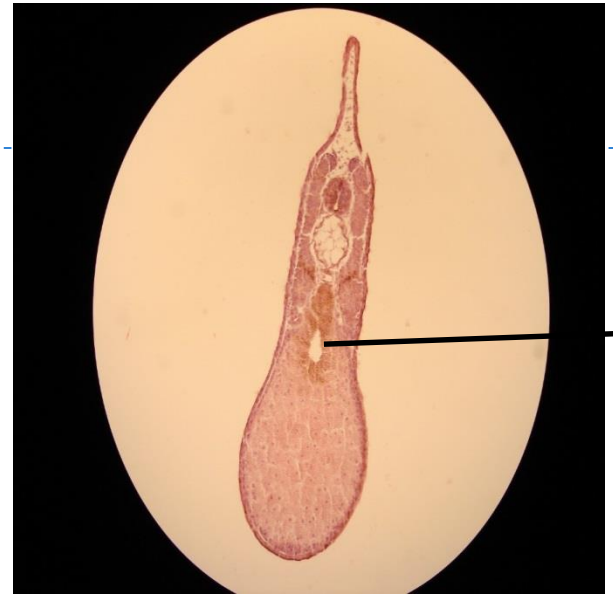

foregut
liver

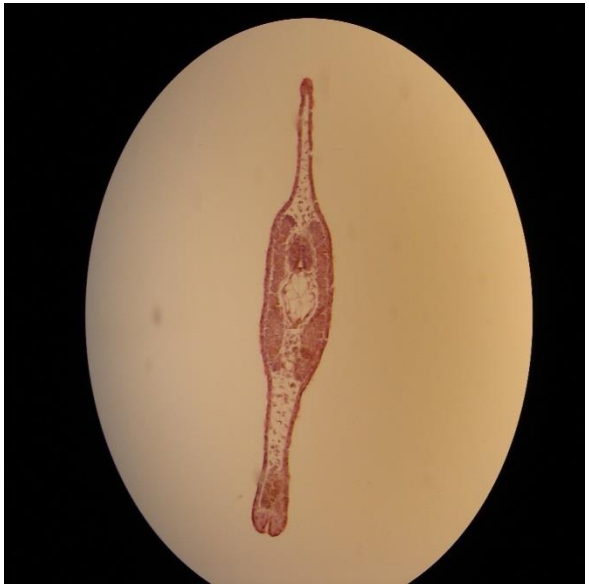
pronephric ducts

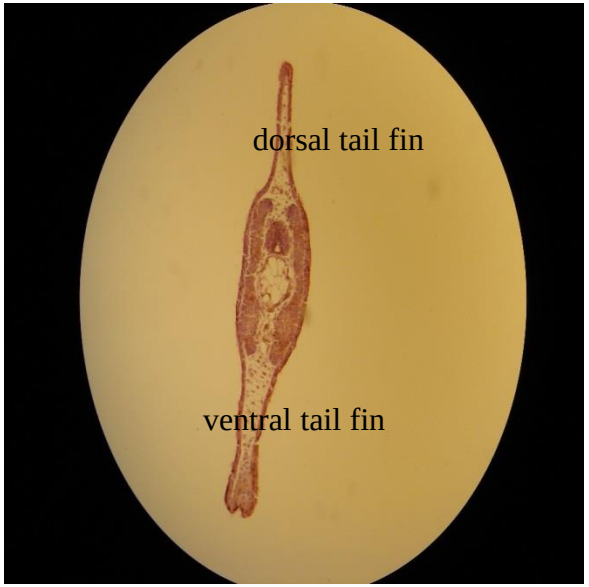
spinal cord

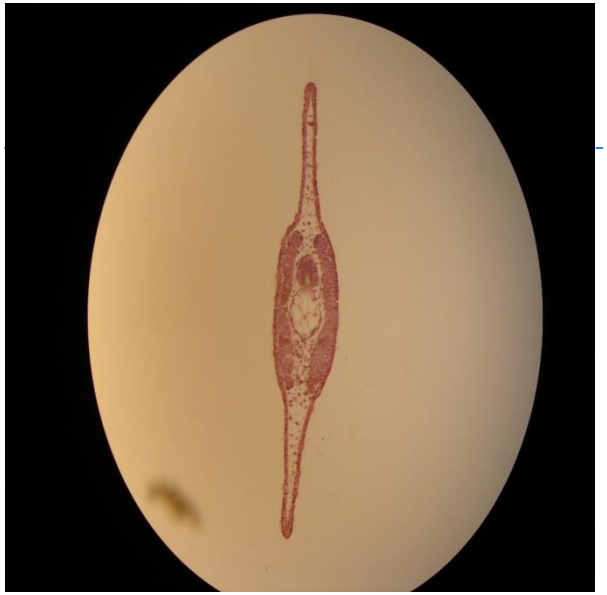
midgut

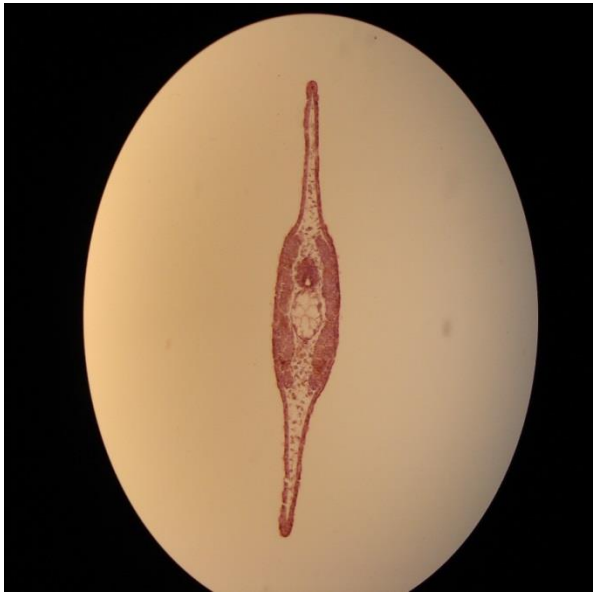

dorsal fin

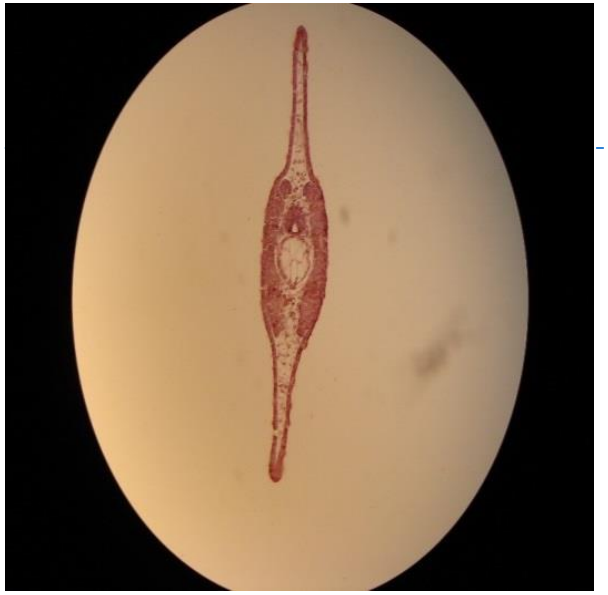

hindgut

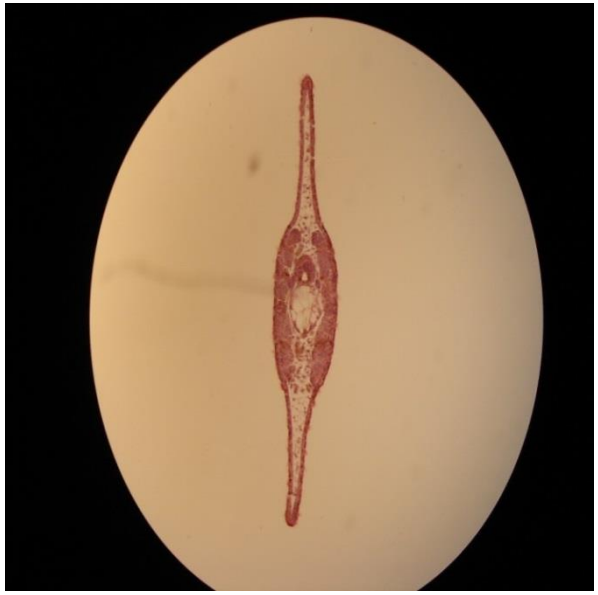


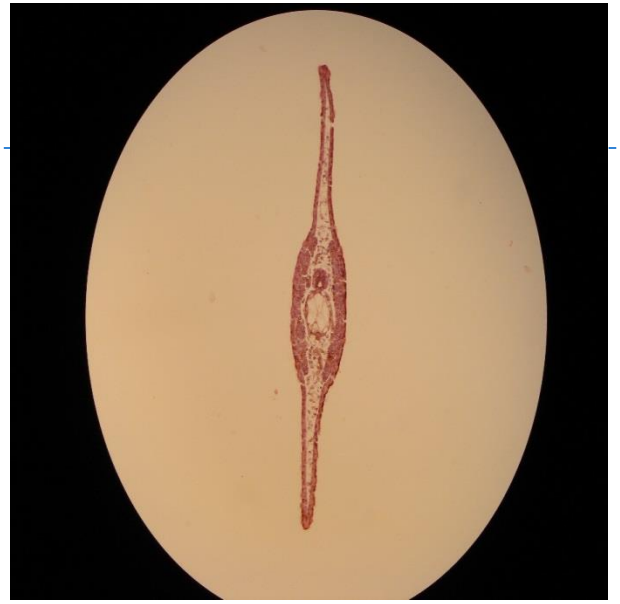

dorsal tail fin
ventral tail fin











دل هر ذره را که بشکافی
آفتابیش در میان بینی